

**INDIANA DEPARTMENT OF TRANSPORTATION
OFFICE OF MATERIALS MANAGEMENT**

**APPROVAL PROCEDURES FOR COATING FORMULATIONS
AND COATING SYSTEMS
ITM No. 606-08P**

1.0 SCOPE.

- 1.1** This procedure covers the requirements for a coating manufacturer's products or formulations to be placed, maintained, or removed from the Department Approved Lists.
- 1.2** The values stated in either acceptable English units or SI metric units are to be regarded separately as standard, as appropriate for a specification with which this ITM is used. Within the text, SI metric units are shown in parenthesis. The values stated in each system may not be exact equivalents; therefore, each system shall be used independent of each other, without combining values in any way.
- 1.3** This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and to determining the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 AASHTO Standards.

M 300 Specification for Inorganic Zinc-Rich Primer

2.2 ASTM Standards.

D 16 Terminology for Paint, Related Coatings, Materials, and Applications

2.3 ITM Standards.

804 Sample Material Certification Forms

3.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101 and ASTM D 16.

4.0 SIGNIFICANCE AND USE. This ITM includes the procedures for approval of formulation of epoxy penetrating sealers, waterborne finish paints, waterborne traffic paints and both inorganic and organic zinc primers, and the procedures for approval of structural steel coating systems. The coatings and coating systems require approval of formulation or of the coating system prior to a manufacturer furnishing any of these materials.

5.0 GENERAL REQUIREMENTS.

5.1 The procedure for approval of formulation or coating system requires a Quality Control Plan (QCP). The QCP shall include as appropriate to the coatings and coating systems, but not limited to, the following:

- 5.1.1** Name and location of the source or manufacturer
- 5.1.2** List of the material and Standard Specification section reference for the material that approval is being requested
- 5.1.3** Name, address and telephone number of the responsible contact person
- 5.1.4** Facility layout or production process of the material
- 5.1.5** Quality parameters of the material
- 5.1.6** Raw material sampling and testing procedures and frequency
- 5.1.7** Procedures for conforming materials which provides a positive linkage between the furnished materials and the quality control test data
- 5.1.8** Procedures for non-conforming materials
- 5.1.9** Procedures for marking and tracking materials
- 5.1.10** Procedures for maintaining documentation
- 5.1.11** Finished material sampling and testing procedures and frequency
- 5.1.12** Procedures for reviewing and updating the QCP
- 5.1.13** Manufacturer's testing laboratory quality system
- 5.1.14** Titles and qualifications of sampling and testing personnel
- 5.1.15** Location and telephone of the laboratory testing office
- 5.1.16** Laboratory equipment and calibration frequency

- 5.1.17 Test methods, procedures and laboratory equipment used for each raw and finished material
- 5.1.18 Sample management describing procedures for sample identification, maintenance of samples prior to testing, sample retention and disposal of samples
- 5.1.19 Procedures for reporting test results
- 5.1.20 Methods used to identify improper test results and procedures followed when testing deficiencies occur
- 5.1.21 Statistical analysis of test results
- 5.1.22 Maintenance of test records

The QCP shall be signed and dated by the manufacturer's representative at the time the QCP is submitted for acceptance. The QCP shall be maintained to reflect the current status and revisions shall be provided to the Office of Materials Management in writing.

- 5.2 **Regulations.** All coatings shall comply with current IDEM VOC regulations and the cured film of the coatings shall not contain toxic heavy metals above IDEM regulatory levels that would require classification as a hazardous waste.
- 5.3 **Change of Formulation.** Any coating that has a formulation changed after being placed on a listing will be removed from the approval listing. All coatings are subject to testing by the Department using chemical and physical methods other than those specified in the material specifications.
- 5.4 **Submissions for Approval.** A manufacturer's submission for approval of formulation or coating system shall be limited to three attempts of any formulation or coating system during a calendar year. Each of the attempts shall be a minimum of 90 days apart.
- 5.5 **Approval of Coating Formulations and Coating Systems.** The specific requirements for the approval of the formulations or the approval of coating systems are found in the applicable sections of this ITM as follows:

Epoxy Penetrating Sealers	6.0
Waterborne Finish Paint	7.0
Waterborne Traffic Paint	8.0
Zinc Primers	9.0
Structural Steel Coating Systems	10.0

- 5.6 Maintaining Approval of Coating Formulations and Coating Systems.** Samples of each batch of the coatings will be obtained randomly for verification at the source or at the point of incorporation into the work in accordance with 106.02.

For coatings and coating systems in which there has been no change in raw materials, production process or formulations, the manufacturer shall submit to the Office of Materials Management, an annual certification of compliance in accordance with ITM 804. The annual certification of compliance shall be submitted to the Office of Materials Management no later than the last workday of January starting the year following the initial approval of the formulation or approval of coating system.

The manufacture shall provide written notification of any changes, revisions or updates of the MSDS, source name or address, contact person or product name to the Office of Materials Management.

- 5.7 Removal from Approved Listing of Coating Formulations and Coating Systems.** Reasons for removing a coating formulations or coating systems from the approved listing will be, but not limited to, the following:

5.7.1 Test failures determined by verification sampling

5.7.2 QCP changes without written notification

5.7.3 Change of formulation

5.7.4 Change of any of coatings formulations that is part of a coating system

5.7.5 If three consecutive years elapse without furnishing the coating or coating system

5.7.6 Performance of the coating or coating system no longer meets the intended purpose

5.7.7 Failure to annually submit a certification of compliance in accordance with ITM 804

- 5.8 Re-Approval of Coating Formulations or Coating Systems.** If coating formulations or coating systems are removed from a listing, the manufacturer shall comply with all of the requirements of the Standard Specifications and all applicable sections of this ITM prior to re-approval.

6.0 EPOXY PENETRATING SEALERS.

- 6.1 Approval of Formulation for Epoxy Penetrating Sealers.** A manufacturer requesting approval for the addition to the Department's approved list, shall provide to the Office of Materials Management the following:
- 6.1.1** A QCP in accordance with 5.1
 - 6.1.2** MSDS for each component and for the mixed material
 - 6.1.3** A type A certification in accordance with 916, from an independent laboratory, which provides the results of testing of all of the specified properties within the specification. The test report shall be signed and dated by the independent laboratory and shall not be more than 2 years old at the time of submittal
 - 6.1.4** An infrared spectrum of each component
 - 6.1.5** Upon review and acceptance of the QCP and the certified test report, the manufacturer shall provide at no cost to the Department a sample of each component for initial verification testing. Each container shall be clearly labeled with the formulation identification, component designation, manufacturer's name, date of manufacture, batch number, mixing directions and all health and safety warnings as required by OSHA's Hazard Communication Standard.
- 6.2 Maintaining Approval of Formulation for Epoxy Penetrating Sealers.** Epoxy penetrating sealer formulations shall be maintained on an approval list in accordance with 5.6.
- 6.3 Removal of Epoxy Penetrating Sealers from Approval List.** Epoxy penetrating sealer formulations shall be removed from an approval list in accordance with 5.7.

7.0 WATERBORNE FINISH PAINT.

- 7.1 Approval of Formulation for Waterborne Finish Paint.** A manufacturer requesting approval for the addition to the Department's list, shall provide to the Office of Materials Management the following:
- 7.1.1** A QCP in accordance with 5.1
 - 7.1.2** A MSDS
 - 7.1.3** A product data sheet

- 7.1.4 A certified test report from an independent testing laboratory showing specific test results for all of the specified qualitative and resistance requirements within the specifications. The report shall state the manufacturer's name, formulation identification, date of manufacture, batch number and the beginning and ending dates of resistance tests. The test report shall not be more than two years old at the time of submittal.
- 7.1.5 A type A certification in accordance with 916 showing the results from the manufacturer's own testing laboratory for the same batch of paint which was submitted to the independent laboratory for testing
- 7.1.6 An infrared spectrum of the extract vehicle portion of the finished paint
- 7.1.7 Documented information detailing the past history and experience with the specific formulation in terms of service life and specific conditions of use. The documentation shall include details about durability and the successful coating performance for a minimum of three years. The performance history shall include the name, address and telephone number of the structure owner including the name of a responsible contact person, location of the structure, and dates of the application and inspection. The inspections shall be performed by a NACE certified coatings inspector or a SSPC certified coating specialist.
- 7.1.8 Upon review and acceptance of the QCP, the independent and manufacturer's test reports, the manufacturer shall provide at no cost to the Department a sample for initial verification testing. The sample container shall be clearly labeled with the formulation identification, manufacturer's name, date of manufacture, batch number, and all health and safety warnings as required by OSHA's Hazard Communication Standard.

7.2 Maintaining Approval of Formulation for Waterborne Finish Paint.

Waterborne finish paint formulations shall be maintained on an approval list in accordance with 5.6.

7.3 Removal of Waterborne Finish Paint Formulation from Approval List.

Waterborne finish paint formulations shall be removed from an approval list in accordance with 5.7.

8.0 WATERBORNE TRAFFIC PAINT.

- 8.1 Approval of Formulation for Waterborne Traffic Paint.** A manufacturer requesting approval for the addition to the Department's approved list, shall provide to the Office of Materials Management the following:

- 8.1.1 A QCP in accordance with 5.1
- 8.1.2 A MSDS
- 8.1.3 A product data sheet
- 8.1.4 A certified test report from an independent testing laboratory showing specific test results for all of the specified qualitative and resistance requirements within the specifications. The report shall state the manufacturer's name, formulation identification, date of manufacture, batch number and the beginning and ending dates of resistance tests. The test report shall not be more than two years old at the time of submittal.
- 8.1.5 A type A certification in accordance with 916 showing the results from the manufacturer's own testing laboratory for the same batch of paint which was submitted to the independent laboratory for testing
- 8.1.6 An infrared spectrum of the extracted vehicle portion of the finished paint
- 8.1.7 Documented information detailing the past history and experience with the specific formulation in terms of service life and specific conditions of use. The documentation shall include details about durability and reflectivity of the paint.
- 8.1.8 The specific paint formulation by mass and volume of each of the raw materials contained in the finished paint
- 8.1.9 MSDS for each raw material contained in the finished paint. Upon review and acceptance of the specified submittal, the manufacturer shall provide at no cost to the Department a sample for initial verification testing. The sample container shall be clearly labeled with the formulation identification, manufacturer's name, date of manufacture, batch number, and all health and safety warnings as required by OSHA's Hazard Communication Standard.
- 8.2 **Maintaining Approval of Formulation for Waterborne Traffic Paint.** Waterborne traffic paint formulations shall be maintained on an approval list in accordance with 5.6.
- 8.3 **Removal of Waterborne Traffic Paint Formulation from Approval List.** Waterborne traffic paint formulations shall be removed from an approval list in accordance with 5.7.

9.0 ZINC PRIMERS.

9.1 Approval of Formulation for Zinc Primers. A manufacturer requesting approval for the addition to the Department's approved list, shall provide to the Office of Materials Management the following:

9.1.1 A QCP in accordance with 5.1

9.1.2 A MSDS

9.1.3 A product data sheet

9.1.4 A certified test report from an independent testing laboratory showing specific test results for all of the specified qualitative and resistance requirements within the specifications. The report shall state the manufacturer's name, formulation identification, date of manufacture, batch number and the beginning and ending dates of resistance tests. The test report shall not be more than two years old at the time of submittal.

9.1.5 A type A certification in accordance with 916 showing the results from the manufacturer's own testing laboratory for the same batch of paint which was submitted to the independent laboratory for testing

9.1.6 An infrared spectrum of the extracted vehicle from the finished paint, and on multi-component paints an infrared spectrum of each liquid component and an infrared spectrum of the extracted vehicle from the mixed paint

9.1.7 The mix ratio by mass of each component for multi-component primers

9.1.8 Documented information detailing the past history and experience with the specific formulation in terms of service life and specific conditions of use. The documentation shall include the name, address and telephone number of the structure owner including the name of a responsible contact person, location of the structure and dates of the coating application and inspection. The inspections shall be performed by a certified National Association of Corrosion Engineers (NACE) coatings inspector or by a certified SSPC protective coatings specialist. Inorganic zinc primers shall be in accordance with AASHTO M 300 requirements for the performance history.

9.1.9 Upon review and acceptance of the specified submittal, the manufacturer shall provide at no cost to the Department a sample for initial verification testing. The sample container shall be clearly labeled with the formulation identification, manufacturer's name, date of manufacture, batch number, and all health and safety warnings as required by OSHA Hazard Communication Standards.

9.2 Maintaining Approval of Formulation for Zinc Primers. Zinc primer formulations shall be maintained on an approval list in accordance with 5.6.

9.3 Removal of Zinc Primer Formulation from Approval List. Zinc primer formulations shall be removed from an approval list in accordance with 5.7.

10.0 STRUCTURAL STEEL COATING SYSTEMS.

10.1 Approval of Structural Steel Coating Systems. A manufacturer requesting approval for the addition to the Department's approved list, shall provide to the Office of Materials Management the following:

10.1.1 A QCP in accordance with 5.1

10.1.2 A MSDS for each coating

10.1.3 A product data sheet for each coating

10.1.4 A certified test report from an independent testing laboratory showing specific test results for all of the specified qualitative and resistance requirements within the specifications. The report shall state the manufacturer's name, formulation identification, date of manufacture, batch number and the beginning and ending dates of resistance tests. The test report shall not be more than two years old at the time of submittal.

10.1.5 A type A certification in accordance with 916 showing the results from the manufacturer's own testing laboratory for the same batches of coatings which were submitted to the independent laboratory for testing

10.1.6 An infrared spectrum of the extracted vehicle of each coating. For multi-component coatings, an infrared spectrum of each liquid component and of the extracted vehicle of the mixed coating shall be provided.

10.1.7 The mix ratio by weight of each component for multi-component coatings

10.1.8 Documented information detailing the past history and experience with the specific formulation in terms of service life and specific conditions of use. The documentation shall include details about durability and the coating system has performed successfully for a minimum of three years. The performance history shall include the name, address and telephone number of the structure owner including the name of a responsible contact person, location of the structure and dates of the application and inspection. A certified NACE coatings inspector or a certified SSPC protective coatings specialist shall perform the inspections.

10.1.9 Upon review and acceptance of the specified submittal, the manufacturer shall provide at no cost to the Department samples of each of the coatings for initial verification testing. The sample containers shall be clearly labeled with the formulation identification, manufacturer's name, date of manufacture, batch number, and all health and safety warnings as required by OSHA's Hazard Communication Standard.

10.2 Maintaining Approval of Structural Steel Coating Systems. Structural steel coating systems shall be maintained on an approval list in accordance with 5.6.

10.3 Removal of Structural Steel Coating Systems from Approval List. Structural steel coating systems will be removed from an approval list in accordance with 5.7. If a coating formulation for a coating that is part of a structural steel coating system is removed from a listing of approved formulations, the structural steel coating system will also be removed from the listing of approved structural steel coating systems.